REMARKS

The Examiner is thanked for the due consideration given the application. The specification has been amended to insert headings.

Claims 22-42 are pending in the application. Claims 22, 34 and 35 have been amended in order to clarify the object of the invention which relates to a method for the differentiated digital processing of a sound signal. Other claim amendments improve the language and antecedent basis in a non-narrowing fashion.

Acknowledgement of the allowability of claims 25, 28-33 and 37-42 is noted with appreciation.

No new matter is believed to be added to the application by this amendment.

Claim Objections

Claims 22 and 35 have been objected to as containing a misspelling. The comments in the Office Action have been considered, and the misspelling has been corrected.

Rejections Based on HEIKKINEN

Claims 22-24 and 35 have been rejected under 35 USC §102(b) as being anticipated by HEIKKINEN (U.S. Publication 2002/0184009). Claims 26 and 34 have been rejected under 35 USC §103(a) as being unpatentable over HEIKKINEN in view of ALLES (U.S. Patent 4,201,105). Claim 27 has been rejected under 35 USC §103(a) as being unpatentable over HEIKKINEN in view of THYSSEN

et al. (U.S. Patent 6,240,386).   Claim 36 has been rejected

under 35 USC §103(a) as being unpatentable over HEIKKINEN in view

of ALLES, and further in view of THYSSEN et al.

These rejections are respectfully traversed.

The present invention pertains to differentiated

digital processing of a sound signal that includes application to

the temporal signal of the inverse variation of the pitch. The

present invention is illustrated by way of example, in Figure 2

of the application, which is reproduced below.

FIG.2
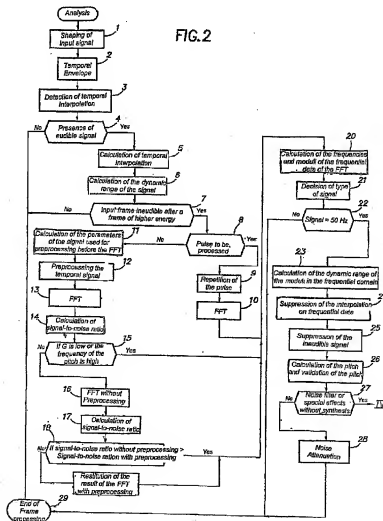
The process schema in Figure 2 is reflected in instant claim 22, for example, which states:

A method for a differentiated digital processing of a sound signal, constituted in an interval of a frame by a sum of sines of fixed amplitude and of which a frequency is modulated linearly as a function of time, this sum being modulated temporally by an envelope, a noise of said sound signal being added to said signal, prior to said sum, comprising:

a stage of analyzing making it possible to determine parameters representing said sound signal by

   calculating the envelope of the signal,

   calculating the sound signal of the pitch and its variation,

   applying to a temporal signal of an inverse variation of the pitch a temporal sampling of the sound signal with a variable sampling step, this step varying with an inverse value of the pitch variation,

   performing a Fast Fourier Transformation (FFT) of a pre-processed signal,

   extracting signal frequential components and their amplitudes from a result of the Fast Fourier Transformation, and

   calculating the pitch in a frequential domain and its variation with respect to the previously calculated pitch in order to improve a precision of the previously calculated pitch.

Claims 22 and 34 have been amended in order to clearly render the object of the present invention novel in view of HEIKKINEN. This amendment clarifies that the validation of the

pitch in the frequency domain is to improve the accuracy of pitch determined by calculating the period of the fundamental. This amendment is particularly based on page 19, lines 6-11 of the specification.

Now HEIKKINEN pertains to improving voicing determination in speech signals containing high levels of jitter. The process schema of HEIKKINEN is illustrated in Figure 7 of the reference, which is reproduced below.

Figure 7
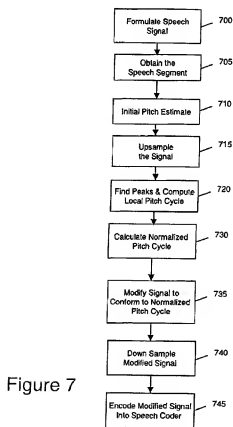
HEIKKINEN does not disclose that *"applying to a temporal signal of an inverse variation of the pitch a temporal sampling of the sound signal with a variable sampling step, this step varying with an inverse value of the pitch variation."*

In comparison, paragraph 0050 of HEIKKINEN concerns a Linear Predictive (LP) Coding:

> *"In LP coding analysis it is assumed that the current speech sample can approximately be predicted by a linear combination of the past samples and corresponding transfer function is often called an LP synthesis filter. The inverse of the synthesis filter is called analysis filter and the prediction error signal which is obtained by subtracting the predicted signal from the original signal, is called residual signal. In the ideal predictor the spectrum of the residual signal is flat."*

Paragraph 0050 of HEIKKINEN does not disclose or infer the features of the instant claims 22 and 34 of the present invention.

The other applied art references of ALLES and THYSSEN et al. do not address the deficiencies of HEIKKINEN discussed above.

HEIKKINEN thus does not anticipate a claimed embodiment of the present invention. One of ordinary skill and creativity would not produce a claimed embodiment of the present invention from a knowledge of HEIKKINEN and the secondary references, and a prima facie case of unpatentability has thus not been made.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Information Disclosure Statement

The Office Action asserts that the foreign and non-patent literature cited in the Information Disclosure Statement of August 1, 2005 has not been considered because a legible copy of this material has not been filed.

However, these references were made of record in the International Search Report and should thus be forwarded in due course. However, for the Examiner's convenience, copies of these references are attached to this paper.

Conclusion

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

It is believed that the objections and rejections have been overcome, obviated or rendered moot, and that no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

The Appendix includes the following item(s):

WO 01/59766

Moulines et al. "Non-parametric techniques . . ."